

# The Royal Horticultural Society

## Plant Pathology Advisory Leaflet

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## Fungicides for Amateur Gardeners

Some diseases can be controlled by several different fungicides. The effectiveness of some fungicides may depend on the environmental conditions, so gardeners may need to try more than one to find those that give the best control of the diseases which affect their plants. If a non-systemic fungicide has been found to give good control of a disease and has not proved too expensive, there is no point in changing to one of a different type. Regular use of certain systemic fungicides, however, may lead to the build up of strains of fungi which are tolerant to them so that they will cease to be effective.

All garden chemicals on sale in the United Kingdom are safe when used according to the manufacturers' instructions. Every proprietary product has been issued with a DEFRA or MAPP (Ministerially Approved Pesticide Products) number which will be found on the pack.

To minimise any possible harmful effects arising from misuse of fungicides the following general rules should be observed:

1. Use chemicals only when they are really necessary. Prevention is almost invariably better than cure and many diseases can be kept down by good cultivation techniques such as rotation of crops, destruction of crop residues, thorough digging and drainage of heavy soils.
2. You must select a chemical which is recommended for the particular purpose you have in mind. Always read the label before choosing a product.
3. Always read the manufacturers' label and check for any limitations or specific precautions you should take. As an added precaution you could wear rubber gloves, particularly when handling the concentrate or when spraying.
4. Follow all the instructions on the manufacturer's label and apply the chemical at the stated rate and in the manner described. It is a legal requirement to comply with the Statutory Conditions indicated on the label.
5. Make sure that you are spraying at the correct times and intervals, as this is often crucial for the control of a disease.
6. It is illegal to mix two chemicals together to give a combined spray unless this is recommended on the label or leaflet.

Note: Where a proprietary product contains an insecticide as well as a fungicide it would be preferable to use an alternative product if pests have not been a problem on the plants treated.

7. Avoid contact with exposed parts of the body, particularly the eyes. Wash off any splashes immediately with clean water.
8. Avoid breathing in dusts or sprays. Wash after using sprays or dusts.
9. Make sure no children or animals are in the vicinity when spraying.
10. Do not smoke, eat or drink while spraying.
11. Spray efficiently to wet the plants without excessive run-off or drift, but thoroughly wet the stems, buds and the underside as well as the upper surface of the leaves.
12. Do not spray or dust in windy, completely calm or hot sunny weather. Spray in the early morning or late afternoon or evening.

13. Do not spray plants which may be injured by the chemical or allow spray to drift on to them. Because of the large numbers of species and varieties of ornamental plants grown in gardens, sensitivity to products should always be checked on a small area or number of plants in the first instance.
14. Clean all equipment after spraying. DO NOT apply fungicides with apparatus that has been used for weed killers.
15. Always try to make up only sufficient solution for the task. Left-over spray must not be poured down the drain.
16. Store chemicals in a cool, dry, frost-free, safe place away from children and pets, keeping them tightly closed and in their original containers.

## Chemicals Available to the Gardener

The following list of small retail packs has been drawn up to aid members of the Society in choosing fungicides. Most of the fungicides available to amateur gardeners are ideal garden chemicals in that they are cheap, effective and have no undesirable side effects, as well as being safe to use when applied as directed on the label. Others, however, though meeting most of these criteria, may fall short in one way or another so take note of any limitations for use given for the fungicides in this list.

Proprietary products sold for the control of plant diseases are listed under the common chemical names of their active ingredients in alphabetical order. All manufacturers are obliged by law to print the name of the active ingredient on the label, but this may appear in very small print. Please note that inclusion does not necessarily indicate a recommendation by the RHS for the uses specified on the product. It must also be emphasised that the RHS is not liable in any way for any consequences which may ensue from the use of fungicides by amateur gardeners.

**Some fungicide products listed in this leaflet under their manufacturers' names may be available from retail outlets as "own brand" products with the retailers' own labelling. It is not practicable to list all of these. Check the label of the crop protection product carefully to confirm the active ingredient.**

- **Ammonium carbonate with copper sulphate**

See: Cheshunt Compound

- **Bordeaux mixture**

A mixture of copper sulphate and hydrated lime, which is available as a wettable powder, for use as a spray or a dust. Controls blight on potato and tomato; celery leaf spot; apple canker; bacterial canker on cherry and plum; peach leaf curl; black currant and gooseberry rust.

**Limitations:** Harmful to livestock which should be kept out of treated areas for at least three weeks. Toxic to fish. Some cultivars may be damaged; if in doubt check a small part of the plant first.

Wettable powder: **Bordeaux Mixture (Vitax)**

- **Cheshunt compound**

A mixture of copper sulphate and ammonium carbonate. Prevents damping-off in seedlings.

**Limitations:** When mixing with water, vessels of iron, tin or zinc must not be used. Apply away from fish.

Soluble powder: **Cheshunt Compound (Bayer Garden)**

- **Copper compounds**

See: Bordeaux mixture

- **Copper oxychloride**

For the control of celery leaf spot, peach leaf curl, potato blight, tomato blight, apple and pear canker, bacterial canker of plums and cherries, rust on currants and gooseberries, cane spot on raspberries and loganberries. Prevents damping-off and foot rot of seedlings of edible and ornamental garden plants.

Wettable powder: **Fruit and Vegetable Disease Control (Bayer Garden)**

- **Copper sulphate**

Used in combination with other chemicals.

See: Bordeaux mixture  
Cheshunt compound

- **Difenoconazole**

Systemic fungicide to control and protect against powdery mildew, rust and blackspot on roses and rust and powdery mildews on other ornamentals (liquid concentrate or ready-to-use spray) and also rust, powdery mildews and scabs on fruits and vegetables (liquid concentrate only).

**Limitations:** Harmful to fish and other aquatic life.

Liquid Concentrate: **Plant Rescue Fungus Control (Westland)**

Ready-to-Use Spray: **Plant Rescue Fungus Control (Westland)**. Only for use on ornamentals. Do not use on dieffenbachia, stathiphyllum, begonias, ferns, carnations, kalanchoe and Japanese azalea.

- **Flowers of sulphur**

See: sulphur

- **Myclobutanil**

Systemic fungicide to control rust, black spot and powdery mildew on roses; rust and powdery mildew on ornamentals; powdery mildew and scab on apples and pears (liquid formulation only); powdery mildew on gooseberries and blackcurrants (liquid formulation only).

Liquid Concentrates: **Systhane Fungus Fighter (Bayer Garden)**

**Multirose (Bayer Garden)**. With rapeseed oil: also control insect pests. Only for use on ornamental plants. Do not use on fuchsias, begonias, asters, solidago and young seedlings

Ready-to-Use Sprays: **Fungus Fighter Disease Control (Bayer Garden)**. Only for use on ornamental plants.

**Fungus Clear 2 GUN! (Scotts)**. Only for use on ornamental plants.

**Systemic Fungus Control (Doff)**. Only for use on ornamental plants.

- **Octane acid (iron and sodium salts)**

Used to form protective seal on pruning wounds

Ready-to-Use Liquid: **Prune and Seal (Growing Success)**

- **Phenolic formulations**

Used to form a protective seal against fresh wound parasites on cut surfaces of certain trees and shrubs after pruning, tree surgery and wounding.

Ready-to-use, organic resin emulsion pruning compounds: **Arbrex Seal and Heal (Bayer Garden)**

- **Plant and Fish Oil Blends**

Products containing these oils attack some pests and diseases by physical rather than chemical action. The products listed carry no statutory conditions of use and are not submitted to the same regulatory controls as synthetic chemical pesticides. They carry no MAPP number. They may be used on all plants, for a range of problems, but the label warns that plants in the Euphorbiaceae family may be sensitive. The diseases listed are powdery mildews, black spot on roses, "helminthosporium" (a broad term for a number of leaf spots) and greasy spot on citrus. The products may also be used against a range of pests, especially scale insects, aphids, thrips whiteflies and spider mites.

Liquid concentrate: **Organic 2 in 1 (Vitax)**

Ready-to-Use spray: **Organic 2 in 1 (Vitax)**

- **Sulphur**

Available in various formulations for different purposes:

- **Sulphur + fatty acids**

Controls powdery mildew on roses and other ornamentals including house plants, trees and shrubs.

**Limitations:** Apply away from fish. NOT for use on food crops or young seedlings, ferns or *Dianthus* spp.

Ready-to-use sprays: **Nature's Answer® Natural Fungus and Bug Killer (Scotts)**  
**Rose Clear 4 Gun (Scotts)**

- **Sulphur candles**

A general glasshouse fumigant used to kill fungal spores on exposed surfaces. The vapours emitted by burning sulphur are extremely irritating to eyes, nose and throats, and will corrode iron. Plants in leaf are killed by the vapours so this product can only be used to fumigate an empty greenhouse.

Smoke: **Dead Fast Greenhouse Sulphur Candle (Growing Success)**

- **Sulphur dusts**

For control of powdery mildew on many fruit, ornamentals and vegetables and storage rots of bulbs, corms and tubers. Also useful for treating greenhouse staging, seed trays and boxes where moulds are likely to occur.

**Limitations:** Do not use on red or white currants. Do not apply to the sulphur-shy cultivar of gooseberry 'Bedford Yellow', 'Counsen's Seedling', 'Leveller', Golden Drop' or yellow fruited varieties. Avoid the use of this chemical also on the following apple cultivars:

'Belle de Boskoop'  
'Lord Derby'  
'Newton Wonder'  
'Stirling Castle'  
'St Cecilia'  
'Lane's Prince Albert'  
'Cox's Orange Pippin'  
'Beauty of Bath'  
'Rival'.

Dusts: **Green Sulphur (Vitax)**  
**Yellow Sulphur (Vitax)**

Note: Sulphur dust can also be obtained from various sources under the name 'flowers of sulphur' but this is NOT for fungicidal use

- **Tar acids and oils**

Tar acids and tar oils are derivatives of coal tar. Various formulations are available as liquids or pastes.

**Limitations:** Should be kept off the skin and away from eyes, food and food containers. Hazardous to fish. Protective gloves, for example neoprene (not natural rubber) and goggles should be worn when handling the concentrated sterilants.

These products are no longer labelled for pesticide use, but are available for the sterilization of greenhouse structures, seed trays and pots.

Liquid: **Jeyes Fluid**  
**Armillatox Soap Based Outdoor Cleaner**

Ready-to-Use spray: **Jeyes Fluid**

As a protective paint for pruning cuts and wounds: **Medo (Vitax); Arbrex Seal and Heal (Bayer Garden)**

- **Trifloxystrobin**

Protects lawn against lawn diseases such as Fusarium patch and red thread

Soluble powder: **Lawn Disease Control (Bayer Garden)**

- **Triticonazole**

Systemic fungicide to control blackspot, powdery mildew and rust on roses and other ornamental plants.

Liquid concentrate: **Fungus Clear Ultra (Scotts)**

**ALWAYS READ THE LABEL: USE PESTICIDES SAFELY**

- **FUNGICIDE COMPANIES**

**Armillatox** is marketed by Armillatox Ltd, The Colliery Industrial Estate, Main Road, Morton, Alfreton, Derbys, DE55 6HL. Tel: 01773 590566. ([www.armillatox.co.uk](http://www.armillatox.co.uk))

**Bayer Garden** and **Phostrogen** products are marketed by Bayer Garden, a part of Bayer CropScience Ltd., 230 Cambridge Science Park, Milton Road, Cambridge CB4 0BW Tel: 01223 226500 ([www.bayergarden.co.uk](http://www.bayergarden.co.uk))

**Doff** products are marketed by Doff Portland Ltd, Aerial Way, Watnall Road, Hucknall, Nottingham, NG15 6DW. Tel: 0115 983 43 00 ([www.doff.co.uk](http://www.doff.co.uk))

**Growing Success** products are marketed by Monro Brands, Unit 1, Quarrywood Ind. Estate, Burntash Road, Aylesford, Maidstone, Kent ME20 7AD Tel: 01622 717373 ([www.monrobrands.com](http://www.monrobrands.com))

**Jeyes** products are marketed by Jeyes Limited, Brunel Way, Thetford, Norfolk IP234 1NF. Tel: 01842 757575 ([www.jeyes.co.uk](http://www.jeyes.co.uk))

**Scotts, Levington, Miracle-Gro, Murphy** and **Nature's Answer** products are marketed by The Scotts Company (UK) Ltd, Salisbury House, Weyside Park, Catteshall Lane, Godalming, Surrey, GU7 1XE. Tel: 01483 410334 ([www.lovethegarden.com](http://www.lovethegarden.com))

**Vitax** products are marketed by Vitax Ltd, Owen Street, Coalville, Leics, LE67 3DE. Tel: 01530 510060 ([www.vitax.co.uk](http://www.vitax.co.uk))

**Westland** products are marketed by Westland Horticulture, 14 Granville Industrial Estate, Granville road, Dungannon, County Tyrone, BT70 1NJ. Tel : 028 8772 7500 ([www.gardenhealth.com](http://www.gardenhealth.com))

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